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TWENTY-SIX CASES IN WHICH AN ABDOMINAL SECTION HAS BEEN PERFORMED A SECOND TIME.

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In this paper I include every case in my practice in which an abdominal section has been performed a second time,† with the exception of six cases already recorded.‡ I have selected these cases for publication together because their histories illustrate a considerable number of complications, accidents, and causes of death which may occur in abdominal surgery, and because very few of them are without special points of interest. The cases may be divided into three groups. In the first eight the second operation was performed on account of a return of disease after a period of good health. The second group consists of five cases in which the first operation was insufficient to effect a cure. In the remaining 13 cases the second operation was required on account of some complication arising as an immediate or a remote consequence of the first.

In eight of the cases I performed both operations. In the others the second operation only was performed by me.

Group I.§—The first three cases were examples of the growth of an ovarian tumour in the second ovary after the removal of an ovarian tumour. In Case No. 1* I performed both operations. On the first occasion I removed a tumour of the left ovary, but I could not find the right ovary. There was an abnormal mass about the size of a walnut attached to the back of the abdominal wall, apparently quite unconnected with the pelvis. I was

† The operation of paracentesis abdominis has not been considered an abdominal section, although it might be maintained that the abdominal cavity is opened thereby.

‡ Illustrations of some modes of death from ovariotomy, 'Medical and Chirurgical Transactions,' vol. 78.

Two cases of rupture of intestine caused by the separation of adhesions to diseased ovaries. 'Lancet,' Sept. 26th, 1896.

Cases of liver and gall duct surgery. 'Transactions of Medical Society,' vol. xviii.

§ In the cases marked with an asterisk (*) I performed both operations.

uncertain as to the nature of this, but it did not appear to be malignant, and I decided not to remove it. Nearly four years later the abdomen somewhat rapidly increased in size, and a large cystic growth developed. It had grown in the abnormal mass attached to the back of the anterior abdominal wall. A careful examination during the second operation failed to show the right ovary in its natural position, and the case appears to have been an example of the condition in which the ovary becomes completely separated from its normal connections, probably by twisting, and is nourished by adhesions in its abnormal position. The patient is alive and well.

In the second and third cases there were very numerous adhesions at the second operations, and both patients very nearly died of obstruction of the bowel during convalescence. Case No. 2 is alive. The third patient died of pneumonia at the age of 65, nearly five years after the second operation, and nearly 11 years after the first.

In the fourth case I was told that an ovarian cystic tumour had been removed by another surgeon three and a half years before I saw the patient. I diagnosed a second cystoma, but, on opening the abdomen, I found a very large collection of ascitic fluid, partially encysted by peritoneal adhesions which matted the intestines together. The left ovary and tube were absent. The right appendages were dotted over with a granular growth which might have been either tubercular disease or papilloma. I removed the ovary and tube, and the patient made a good recovery. She has suffered from constipation and delicacy of the lungs since the operation, but her health improved greatly after she made her home in a more southerly climate. I regret that the specimen removed was not examined with the microscope.

In the fifth and sixth cases it was supposed that both ovaries had been completely removed for neoplasms before the patients came under my care. In each case I was informed of this by the gentleman who had operated. Nevertheless I performed in each case an operation in no way differing from an ovariotomy with deep enucleation of the growth, except that the Fallopian tubes were absent. Case No. 5 is quite well, but I think she has a small hernia in the scar, which, however, I have not had an opportunity of examining. In Case No. 6 there is a very small sinus from which some silk ligatures have been protruded. The

tumour removed was very multilocular, with viscid contents and numerous adhesions to all the surrounding tissues. After the operation a large collection of blood formed and burst through the lower angle of the wound on the tenth day. More than half a pint of dark red fluid of the consistence of syrup escaped in 24 hours, and then the discharge became very scanty. I expect that many of the very numerous ligatures applied to divided adhesions will escape before the wound finally heals. At the present time there is an opening the size of the finest pin head, practically without discharge and causing no irritation. In every other respect the patient could not be in better health. It is nearly nine months since the second operation. (Since this paper was read the wound has completely healed.)

These two cases show a local recurrence of an ovarian growth, probably springing from a piece of ovarian tissue or a piece of growth inadvertently left behind at the first operation. Such cases are rare, but others are on record. The condition is in marked contrast to the secondary development of malignant disease which took place in Case No. 7,* in which I performed a fairly easy ovariotomy on June 6th, 1893. There were a few slight pelvic adhesions, and I noted that there was some solid tissue in the tumour. The patient made an uncomplicated recovery and continued in good health until October, 1895, when she began to suffer from an increasing difficulty in keeping the bowels open. I saw her on January 26th, 1896, and she then had an almost complete intestinal obstruction with abdominal distension, much pain and constant vomiting. I thought that there might be a simple obstruction, but the slow onset of the mischief and a small hard nodule behind the cervix uteri made me suspect the presence of malignant disease. I recommended an exploration with the formation of a fistula to relieve the vomiting and the pain due to peristaltic efforts, if no more effectual treatment should be possible. The peritoneum was found studded over with numerous cancerous nodules, about the size of small peas, and I therefore opened a coil of gut as low down as possible. The operation was successful in relieving pain, and, when the abdominal distension had subsided, Dr. Adams, of Ipswich, under whose care the patient was, found large masses of growth below the liver. Death from exhaustion took place a month later.

Case No. 8 might be put in the second group of cases in which the first operation did not effect a cure, but I place it in the first group inasmuch as the patient had nearly nine years of good health after the first operation. The gentleman who operated in 1885 informed me that he had found an ovarian tumour so thin walled and so deeply embedded in the broad ligament that he thought it wise to drain the tumour instead of removing it. When I opened the abdomen nine years later, I found a multilocular very thin walled cystoma of the right ovary, extending as high as the navel and commencing disease of a similar nature on the left side. I had no difficulty in removing both neoplasms completely. It is now two years since the operation, and the patient is stout and well, nothing abnormal being palpable in the pelvis. The case shows the very great changes which may take place in the relations of an ovarian tumour, for there was no difficulty whatever in completing the operation in 1894, whereas a most able and experienced surgeon had thought it best to leave the operation incomplete in 1885.

In the foregoing cases I did both operations in only two instances, the first and seventh. Death was not caused by the operation in any of these cases, and six of the patients are alive and well.

Group II.—In the following five cases the first operations failed to effect a cure. In each instance I performed the second operation only, and there were two deaths.

In Case No. 9, the left ovary was removed in May, 1890, for the relief of inflammation accompanied by constant aching pain. The patient was much better for a very short time. After about two months the pain returned as bad as ever in the remaining ovary. The patient became so ill that, after consultation with the gentleman who had performed the first operation and with others, I removed the second ovary in March, 1891. For nearly a year after the second operation I frequently received letters from the patient asking me for advice, and saying that she was no better. After a year she began to improve, and last spring, in answer to my inquiries, she informed me that she only suffered from a bearing down sensation of comparatively little consequence.

In Case No. 10, the patient, a governess, dated her illness from 1881, when a horse which she was riding bolted with her. She

was not thrown and did not think she was hurt in any way, but she was much shaken and frightened. A few months later, being then 37 years old, she began to suffer from profuse, frequent, and painful menstruation. In 1885 she sought advice at one of our Metropolitan Medical Schools. She told me that something was removed through the vagina, but that no benefit resulted. Early in 1893 an abdominal section was performed by the obstetric physician to another London School. After this the patient could not get about at all. A profuse red discharge from the uterus continued for three or four weeks at a time, it was considered necessary to plug the vagina on several occasions, and the pain was so great that morphia injections were required almost daily.

After 10 months a ligature escaped from the vagina and there were subsequently repeated discharges of matter and blood. The gentleman who had operated told me that he had removed the left ovary, which contained a small dermoid tumour, and also the right ovary, but he was not sure if he had removed the latter completely. The notes, taken by a student, stated that there was no fibroid tumour of the uterus. I reopened the abdomen on March 22nd, 1894, and after separating many adhesions I removed the left Fallopian tube with a small nodule that was evidently the tied stump of the left ovary. Part of the right Fallopian tube also remained, and it was removed, together with that part of the broad ligament to which the ovary should normally have been attached. Two small pedunculate fibroids, the largest about the size of a walnut, were then tied off and cut away, and I noted that there were numerous other small fibroids in the uterine wall.

Convalescence gave no trouble. After the patient got up, uterine discharges continued at intervals till August, but now there was no blood in these discharges. I saw the patient in June, 1895. She then stated that she had been working 16 hours a day for 11 months as manageress of a boarding house, and was in the best of health, without any pain or discharge. A week before her visit to me she had wisely obtained lighter work. Obviously the arrest of the functions of the uterus was essential to a cure in this case, and this had not been effected at the first operation. In operating I adopted a plan since described by Dr. Penrose in the 'Annals of Surgery' for July, 1896, by which a much more thorough extirpation of the ovaries may be effected

than by the method I had previously used. The method consists of tying the broad ligament close to the uterus and also as far out as possible, removing the parts between, and securing separately any bleeding points in the lower untied portion of the broad ligament.

I adopted the same plan in Case No. 11. In this case the patient complained of a swelling in the abdomen and of having had much pain for six years. During that time she had attended a woman's hospital and had been an in-patient twice. In April, 1895, an abdominal section had been performed, and since that time the patient's health had been much worse than before, the pain had been more severe, and the periods had been very irregular.

On examining the patient I found extreme tenderness in the pelvis, which made it impossible to define the parts with certainty. The womb, however, seemed somewhat enlarged, and I detected two swellings—one the size of a Tangerine orange on the left side and a smaller one on the right, this last being much the more tender of the two. The woman was in a state of great exhaustion from constant suffering, and every examination caused excruciating pain which only subsided after two or three days. Her pulse was never below 120, and the temperature varied between 97·4° and 99° F. On June 1st, 1896, about 13 months after the first operation, I reopened the abdomen, and found that the fundus uteri was retroverted. The right broad ligament was also folded back, and behind it I felt a hard mass about the size of half a healthy ovary. This was adherent to the sigmoid flexure. On pulling up the broad ligament I opened a cavity between it and the bowel, and out of this cavity I squeezed a caseous-looking mass which on examination was found to consist of three interlocked silk ligatures. I removed the part of the broad ligament which had been in contact with these ligatures by the plan referred to in the last case, it being absolutely impossible to do so by the more ordinary method. The portion of the sigmoid flexure which formed the posterior wall of the cavity was carefully removed, and I sewed the edges together as if the bowel had been opened. The left ovary and tube, forming an inflamed mass about the size of a Tangerine orange and adherent to all the surrounding parts, were then separated and removed.

The patient died on the third day, with a high temperature and a feeble, rapid pulse. At the autopsy the wound looked very

unhealthy and showed no sign of union when the sutures were removed. There was no evidence of peritonitis, and there was no fluid in the peritoneal cavity except a few drams of blood-stained serum. The mucous membrane of the bowel had not been opened by the removal of the abscess wall from its peritoneal surface. I attribute this death to the severity of the operation and the exhausted and poisoned condition of the patient.

The silk ligatures which I removed were very much coarser than any I ever use.

In Case No. 12 a fibroid tumour was cut down upon by the patient's medical attendant in 1891, but the dangers of hæmorrhage were considered so great that nothing was removed. Afterwards a cystic tumour was tapped on several occasions, and in May, 1893, this cyst was opened and drained. Other tumours developed in the abdomen, and in July, 1894, the gentleman who had operated brought the patient to me for advice and further treatment. The patient was then 47 years old, and had ceased to menstruate. When I had made a careful examination, the patient and her friends were plainly told that an operation would involve unusual danger, but as the tumours were very large and partly cystic, I advised that they should be removed, and the patient decided to have this done, with the full approval of the gentleman who had performed the first operations.

Accordingly, on July 25th, 1894, I removed the following :—

(1) A large partly solid and partly cystic tumour occupying the right side of the abdomen as high as the costal margins. This tumour was attached to the right side of the fundus of the uterus, the point of attachment being almost as thick as my wrist. One of the cysts in this tumour had an opening by which it had been drained, and the growth was firmly attached to the abdominal wall over the whole of its anterior and right lateral aspects and also to the uterus and adjoining parts by very tough and vascular adhesions.

(2) The supra-cervical portion of the uterus, with a solid fibroid tumour the size of a cocoa-nut in its left wall.

(3) A very large cyst in the left broad ligament, springing from the side of the uterus, and rising well above the left costal margin, the peritoneum being reflected from it to the abdominal wall very high up in front and behind.

(4) A small solid oval tumour, about 3 inches long, growing

from the lower end of the left side of the womb, and extending downwards for some inches into the vascular tissue at the side of the vagina.

(5) The ovaries and Fallopian tubes.

On the right side the ovary and tube were in normal relations to the uterus, but the left appendages lay above the level of the umbilicus in the angle between the enlarged uterus and the cyst in the left broad ligament. Obviously, a great deal of enucleation was necessary on the left side, and the adhesions on the right side caused by the previous operations were so tough that their separation required a very difficult and prolonged manipulation.

After an operation lasting nearly three hours, the patient was put to bed in very fair condition; but she died 17 hours later, with symptoms which indicated that a ureter or the bladder had been injured. I did not think the latter could have been wounded, because, in separating it from the enlarged uterus, I had had a catheter passed as a guide until I thought I was working well behind the bladder. At the autopsy, however, an opening was found in the posterior wall of the bladder near its base. I can only offer a conjecture as to how and when the accident happened. I presume it must have been when I was enucleating the small solid tumour which was situated deeply in the cellular tissue to the left of the vagina. As I have said, I thought when I was enucleating this growth that I was working below the bladder, and I kept a keen look out for the ureter, which, however, I did not see. At this part the tissues were very vascular, and the catheter, used to define the position of the bladder, had also emptied it, so that I got no assistance from the sudden gush of urine that might otherwise have taken place. I now always use a sound and not a catheter if I wish to define the position of the bladder. I think that probably the left ureter was pressed low down by the tumour in the deep part of the broad ligament and that a portion of the bladder had been drawn down with it. The *post-mortem* report stated that the bladder was very large.

This accident was most distressing, for the patient's chance of recovery would have been fairly good if it had not happened. I record the case because it is necessary to complete the series, and also because it shows how the ordinary anatomical relations may be distorted by pelvic growths.

The last case in this group, No. 13, was a most unpromising one. The patient was 44 years old, and had had her ovaries

removed by the obstetric physician to one of our Metropolitan Schools, in May, 1893, for the purpose of arresting hæmorrhage caused by a uterine tumour. Her periods ceased for six months after the operation and then returned, blood being constantly lost in small quantities, and very copiously for a few days about once a month. On two subsequent occasions the patient had some operation performed through the vagina, an anæsthetic being given. After the first the periods again ceased for six months, and then returned as before. The second of these minor operations was performed in November, 1895, and there was no discharge after it, but the uterine tumour began to grow rapidly and became very painful. The patient stated that on June 30th, 1896, she was transferred from the gynecological to the surgical department of the hospital she was attending, and she then decided to seek advice at the Samaritan Free Hospital, where she was admitted under my care on July 6th.

She had a tumour of the uterus rising out of the pelvis to the level of the navel with an irregular surface and very tender. It expanded the cervix uteri down almost to the external os, but it was fairly movable from side to side at its upper part. Those of my colleagues who saw the case advised that the tumour should be removed, although it was obvious that the patient was very feeble. I agreed that an operation alone could give relief. Nevertheless, I should have hesitated about undertaking such an obviously dangerous course if the patient had not urged me to do so after I had clearly expressed to her my opinion that the result would be very doubtful. Before the day fixed for the operation the patient developed a dry cough with pain at the base of the left lung, where a distinct friction sound was heard accompanying the respiratory movements. In consequence of this the operation was postponed till July 16th, when the chest condition was decidedly better. I then opened the abdomen intending to take out the whole uterus, but on examining the parts from the inside I determined to leave a portion of the cervix and fix it, by the extra peritoneal plan, between the lips of the abdominal incision. When this can be done I believe it gives the patient a far better chance of recovery than any of the methods by which the abdomen is at once closed.

The operation, as I had expected, was a very difficult one, but the patient gave no trouble from a surgical point of view during

convalescence, although she was in a position of extreme danger for weeks on account of her debility and the state of her lungs. The cervix came completely away as a slough during the fourth week of convalescence, and for a time there was a free opening between the vagina and the anterior wound. Convalescence was slow but complete. I saw the patient on October 5th, 1896, when her wound was quite healed, she was free from pain and had put on much flesh. Microscopically the tumour was a round-celled sarcoma. In it there was a cavity containing about half a pint of fluid. Probably the canal of the uterus had closed on account of the application of caustics, and a considerable retention cyst had formed. (In the spring of 1897 this patient was successfully operated on by another surgeon for acute obstruction of the intestine.)

Group III.—In the remaining cases the second operation was performed on account of some complication resulting from the first operation, or arising during convalescence. In this group I did both operations in six cases. In the other seven I did the second operations only. Five of the patients died.

The first three cases in this group indicate three forms of bowel difficulty which may arise after an abdominal section.

Case No. 14.* In this case the patient, when I first saw her, was 46 years of age, and had been under treatment for uterine tumours in America for 11 years. Amongst other methods Apostoli's had been applied twice a week for 12 months, and the patient asserted that this had made her worse rather than better. She had constant and increasing pain, which was more severe at her monthly periods. I was at first inclined to take the view which had probably been taken by others, namely, that an operation for the removal of the growths was unjustifiable when the patient might shortly hope for relief by passing through the change of life. After keeping her under observation for about six months, however, I came to the conclusion that she really did suffer sufficiently to justify immediate surgical interference, and, on opening the abdomen, I found that there was in each iliac region a very hard oval tumour about the size of an orange attached to the top of the uterus by a pedicle about an inch and a half long and as thick as an ordinary cedar pencil. These growths were almost devoid of blood supply, and had undergone

a kind of calcareous degeneration, so that they were practically foreign bodies, and acted as such. They had created much inflammation, and were attached by adhesions to omentum, intestine, and everything they touched. Without doubt these adhesions were a chief cause of pain. In addition to the above there was a large soft fibroid tumour tensely filling Douglas' pouch. I removed all the tumours and also the ovaries and Fallopian tubes, and fixed the stump of the uterus outside the peritoneum in the usual way.

The highest temperature during convalescence was 101·6° F. in the vagina, the highest pulse 96, and the wound steadily healed round the sloughing pedicle; but convalescence was complicated by the fact that every attempt to feed the patient by the mouth gave rise to pain, retention of flatus, and abdominal distension, these unpleasant conditions ceasing when nutriment was administered only by the rectum. This alternation of conditions was repeated over and over again, the pulse and temperature being only very slightly affected. The bowels were moved from time to time by enemata, but the administration of these also gave much pain, and laxatives always caused distension.

Two months after the operation I ordered that feeding by the mouth should be persevered with for a few days. The result was that after four days the pain became very severe and culminated in a kind of fit. Under rectal feeding the patient returned to her usual condition; but after this attack she was able to take food more freely, and laxatives had more effect than before in moving the bowels. I believe that some adhesions gave way at this time. The patient left my immediate charge a fortnight later with instructions to be very careful in keeping the bowels open and to limit the diet if she became distended. I hoped that the partial obstruction which evidently existed would be overcome in time by the gradual stretching of adhesions. The patient continued, however, to be much troubled by pain and distension. She could not take laxative medicine or use an enema without suffering severely, and the bowels would not act spontaneously. After an interval of 22 months I agreed to the patient's urgent request that I should reopen the abdomen and separate the adhesions which I believed to be the cause of her trouble. In consultation at this time it was discovered that the patient's right kidney was movable. It was suggested that this was the sole cause of the

patient's symptoms, and fixation of the kidney was recommended. I adhered to the view that adhesion of the intestine was the chief cause of mischief, and on October 16th, 1895, I opened the abdomen and found that the centre of the transverse colon was fixed to the back of the abdominal incision nearer to the pubes than to the umbilicus, so that this portion of the gut had a V shape, and the acute angle at the middle of the colon was at the time of operation occupied by a scyballous mass of fæces. The omentum was much adherent to the abdominal wall and also to the sigmoid flexure, which was thus fixed to the centre of the transverse colon. This arrangement accounted for the way in which the administration of an enema had always caused a severe dragging pain in the region of the liver. I separated the transverse colon completely from the omentum and put it in its proper place. The right kidney was movable, but the adhesions found seemed to me to account fully for the patient's symptoms, and in any case the operation had been so difficult and prolonged that the addition of further manipulations was not advisable. The patient made a good recovery and her bowel condition was much improved. She still complains, however, of distension and pain in the right side. During the summer she suffered much from headaches, and on one occasion she had an attack which was said to be an epileptic fit. When I have seen her she has always looked very well, and Mr. Thorburn Steer, under whose observation she has been recently, tells me that the attacks of pain are certainly less troublesome as time goes on. The patient was able to go to Scotland and the seaside in the course of the summer, and in September she went to America.

The next case, No. 15, illustrates a remote and rare effect of a pelvic operation. The patient had a double ovariotomy performed in 1882. This was followed by troublesome constipation, which became a serious difficulty 10 years later. She came under my care in May, 1893, when no treatment, either by the rectum or by the mouth, made the slightest impression on the bowels, which were absolutely blocked for a week before I operated. This condition had developed very slowly and was not accompanied by much vomiting. The finger in the rectum could not reach the seat of obstruction, but large masses of fæces were felt both through the rectum and through the vagina, and also by palpation of the abdomen. The patient was very feeble, but improved

somewhat under careful nursing and the administration of food by the rectum. There was no rise of temperature. After consultation, I opened the abdomen on June 2nd, 1893, and found the whole colon enormously distended, but I could not find the cause of obstruction. As there had been no fever, and the patient, although very weak, was not acutely ill, the small gut not being distended, I decided to sew the sigmoid flexure to the wound and to open it later. By 8 p.m. on the day of operation, however, the patient's condition was extremely serious—the pulse being 140 and the temperature 102° F. It was obvious that the bowel must be opened without further delay. This was done and a large quantity of fæces was removed, but death occurred about midnight.

At the autopsy it was found that there had been no escape of fæces into the peritoneal cavity. At the lower end of the sigmoid flexure the canal of the gut was almost completely obstructed by a mass of cicatricial tissue which had ulcerated on the mucous surface. The lumen of the canal was reduced to the size of a cedar pencil and passed obliquely through the diseased tissues. There were some fæces in the rectum after death, so that the obstruction had been to some extent relieved by the diminution of pressure from above. There was still a very large quantity of fæces in the colon. It is impossible to say definitely that the stricture depended on the ovariotomy performed 11 years before; but I think it highly probable that there was some drag on the bowel from that date, which was indirectly the cause of the development of cicatricial tissue.

It is easy to say now that in this case it would have been wiser to open and clear the bowel at the time of operation.

Case No. 16. In the next case the patient had a supravaginal hysterectomy performed in 1893, from which she made a good recovery. She continued well till March 22nd, 1896. On the evening of that day she ate a hearty supper, and on the following morning she was seized with severe pain in the abdomen. I was asked to see her on the 24th, when I found the pulse 72 and the temperature below 100° F. To the left of the middle line I could define a distended coil of intestine, which I thought might be the sigmoid flexure. Further consultation was desired, and as a consequence operation was postponed. In the meantime, opium and belladonna were given, food by the mouth was withheld, and

the patient was nourished by nutrient enemata. During the night a little flatus escaped occasionally when a tube was inserted into the rectum. Next morning the pulse was 108; the temperature had been 103° F., had fallen to 101·8°, and was again 103°, and the abdomen was somewhat distended. I opened the peritoneal cavity, and found a coil of small gut strangulated and sloughing, having been tightly constricted by a band of adhesion, which was very strong, although not thicker than a piece of No. 3 Chinese silk. I brought the parts out, cleaned them as much as possible, washed out the peritoneal cavity, and made an artificial anus; but diffuse septic peritonitis already existed, and the patient died about 10 o'clock in the evening of the day of operation.

Surgical treatment cannot be employed too soon for the condition which existed here, but although, as in the last case, it is easy to say now what should have been done, it is not always easy to decide beforehand when to operate, and it is sometimes still less easy to persuade the patient and the patient's friends of the necessity for immediate interference. Quite recently I was called to a case in which an obstruction was clearly diagnosed, and in which I gave a most unfavourable and only too correct prognosis, mainly on account of the time that had elapsed from the onset of the first symptoms, but also in some measure because the symptoms had been attributed to an indiscretion in diet, and efforts had been made to relieve them by means of purgatives. I thought it right, however, to give the patient the chance afforded by an operation. I found an obstruction due to a complicated twist and adhesions of the bowel, for the release of which considerable manipulation was required. The patient's history seemed to indicate that the adhesions had been caused in the first instance by a pelvic inflammation following the birth of a child. This had been completely recovered from, and no doubt the obstruction was directly induced by the eating of a large quantity of shell fish. The whole of the gut above the obstruction was so intensely congested and so completely paralysed that it remained a large, flaccid, blue-black tube after its contents had been removed. Death followed within 12 hours; but even in this case it might have been thought, from the appearance of the patient between the intervals of sickness, that she had no serious disease—so much so that I remarked on the patient's placid appearance before the administration of the anæsthetic.

Cases of obstruction by band, if promptly treated, should give as good results as the operation for strangulated hernia. Unfortunately, the diagnosis is more difficult, and the initial treatment is too often a purgative.

In the two following cases, Nos. 17* and 18, the second operation was required on account of a hernia in the scar of the first. Case No. 17 is the only one in which I have found this necessary after an operation by myself, although I know that small herniæ which give little trouble have occurred in a few of my cases. In this case the hernia was also small, but it seemed well to cure it, and the patient has now a firm cicatrix. Case No. 18 is somewhat remarkable, in that the first operation was performed in 1881, and the scar gave no trouble for 13 years. Suddenly, after lifting a heavy box, the patient found a hernia, and in 1895 I cured this for her.

In three out of the four operations performed in Cases Nos. 19* and 20,* the peritoneum was not opened, but the histories are related here because the kidney is an abdominal organ. In the first, the fatal issue was rather a failure to cure a dying child than a death from operation. The patient was 11 years old, and extremely anæmic. She had suffered from pain in the right kidney for five years, and when she came under my care the urine contained pus to the extent of from one-third to half of its bulk. The right kidney was very tender, and enlarged to about six times its normal size. The patient was so feeble that in consultation it was decided simply to drain the kidney, in the first instance, unless a stone forced itself on my notice. Accordingly, on July 21st, 1891, I opened the kidney, and the operation gave very great relief to the patient. Her pain ceased, she gained flesh and colour, and all went well for more than three weeks, urine being discharged freely from a tube placed in the wound. In the fourth week the patient developed signs of obstruction in the left ureter. She suffered severe pain, was unable to take food, and rapidly became extremely ill. I then opened the left kidney also, but did not, as I had hoped, find a stone blocking the upper end of the ureter. The drainage of this kidney relieved the patient's pain immediately, but she had little strength left, and she died three days later.

At the autopsy the right kidney was found very much enlarged, completely disorganised, and with a stone the size of a hazel nut

near its centre. There were many minute calculi in the left kidney, which was otherwise healthy. At two points the left ureter was visibly distended, apparently by two stones. But on the slightest pressure the obstructions crumbled away. They were collections of minute calculi which had got jammed in the ureter so as to block its lumen.

Case No. 20.* In this case an unusually adherent dermoid ovarian tumour was removed on June 11th, 1896, and the patient's condition gave absolutely no trouble or anxiety for a fortnight. On the sixteenth day she was allowed to get up and lie on the sofa, and she then complained that her belt hurt her. She continued to complain of pain, and two days later there was a rise of temperature. The patient was confined to bed again, and I discovered a decided tenderness in the left kidney, which was enlarged. I then obtained a history that for 18 months the urine had from time to time been thick when passed. The specimen which I had examined before operation became very slightly hazy on boiling. The urine passed during the first fortnight of convalescence was abundant, acid, and clear, but I did not examine it for albumen. On July 3rd, the twenty-second day after the operation, some urine was passed containing about half its bulk of pus. After this the patient's condition improved somewhat; but the right kidney also was now slightly enlarged and tender. The urine again became clear, and contained only a trace of albumen. There was no trouble from the bowels. The lower abdomen was soft and flaccid, and no hardness or tenderness was detected in the pelvis by bimanual examination. The left kidney remained very tender. On July 6th, the twenty-sixth day after the operation, the patient's condition was again worse, the left kidney was very hard and could not be touched without causing severe pain, the temperature rose to 105°, the pulse, which had kept steady, about 84 to the minute, rose above 100. The patient became drowsy and indifferent, and I expressed the opinion that she would die if an opening were not made into the left kidney. The patient's friends wished Dr. Douglas Powell to see her, and he kindly met me and Dr. Coker, of Uxbridge Road, on July 7th, when it was agreed that the kidney should be opened. This was done immediately. The kidney was very large, not less than 9 inches long, and broad in proportion. On tapping it with a trocar and cannula, I drew off some red fluid, but no pus. I there-

fore made an incision into the pelvis, but still got no pus. On inserting my finger I found that the calices were much enlarged, and I divided several septa, pushing my finger into the kidney in all directions, but gaining no further information as to the cause of mischief. The parts outside the kidney were quite normal. I inserted a drainage tube and closed the wound. The patient was very feeble for a couple of days, and the temperature remained high. After July 9th the course of convalescence was one of steady improvement, with occasional rises of temperature and attacks of pain, the urine being sometimes alkaline and containing albumen, and sometimes acid and free from albumen.

Later on, it was discovered that these attacks yielded promptly to purgation, and Dr. Coker suggested that free purgation might have obviated the necessity for the second operation. This is just possible, although I hardly think it likely. It did not occur to any of us to treat the case in this way at the time of serious danger, and the bowels were then being frequently moved without difficulty.

It should further be considered that although I discovered nothing but a much dilated kidney at my second operation, I must certainly have altered the relations of its calices to each other by my manipulations, and that in this way I may have broken down some obstruction to the exit of urine. I am inclined to think that this patient had suffered from pressure of the tumour on her ureters, especially the left, for many months before operation, that the kidney was distended occasionally, and that when she got up after lying on her back for a fortnight, the left kidney was tilted over, and induced a valvular obstruction which was closed by the pressure of the fluid within the kidney, and could not properly relieve itself till the kidney was opened. At the second operation I probably relieved some valve-like obstruction such as is described by Fanger in the 'Annals of Surgery' for June.*

For the past two months both the wounds have been quite healed; the patient can get about, and has been in very good health, with the exception of one attack of pain, accompanied by a rise of temperature, which continued for about four days, and on one occasion was as high as 104° F. A free purge was

* The operative conservative treatment of sacculated kidney. 'Annals of Surgery,' June, 1896.

administered whenever the temperature rose, and in a week the patient was well again.

(This patient's health is now thoroughly re-established—July, 1897.)

In the following six cases an immediate operation was deemed necessary during convalescence from various surgical procedures.

In Cases Nos. 21* and 22* I did both operations, and the results were fatal. In the last four cases I only did the second operation, and all recovered.

In Case No. 21* the patient was a woman, 35 years old, in whom extreme anæmia had been induced by profuse hæmorrhages, caused by the presence of a fibroid uterine tumour. I removed the growth without much difficulty, and fixed the lower part of the body of the uterus between the lips of the abdominal incision by means of a *serre-nœud* in the usual way. After the operation the patient gave me little or no anxiety, except for the fact that she was extremely feeble. The temperature, taken in the vagina, was never above 102·4° F., and by the ninth day it had come gradually down to 99° in the morning and 100·4° in the evening. The bowels had then acted freely, the sloughing pedicle seemed to be separating nicely, the patient enjoyed her food, and I thought all would be well with her. On this day I made a note that the wound above the pedicle was absolutely free from all signs of irritation, and I removed all the sutures except those next the sloughing pedicle. The following night the patient was restless and uncomfortable, but she felt better after the bowels had been well cleared by an enema in the morning. My attention was chiefly devoted to keeping up the patient's strength. I noticed that the abdomen was somewhat full, and I supported the incision by strapping, but I did not anticipate that the scar would give way. The wound was dressed daily, and on the twelfth day after the operation I found that about an inch of the upper part of the incision had yielded, exposing the omentum. There was no adhesion or other sign of inflammatory reaction. I carefully cleaned and reclosed the opening by three sutures, but the patient gradually sank, and died 36 hours later. At the autopsy there was no evidence of inflammation in the abdomen except some injection of peritoneum behind the seat of rupture of the wound. There was much congestion of the lungs, and all the tissues were very anæmic.

I have seen a considerable number of cases of rupture of the abdominal wound due to a sudden strain, as from retching, or coughing, after the sutures had been removed, but I have never seen any other than this in which there was no attempt at union of the exposed viscera to the edges of the incision, or any in which a fatal issue has resulted from the accident.

In Case No. 22* the patient was 40 years old. She had had one miscarriage soon after marriage, nine years before she came under my care. There had been an uterine discharge for about six years, which constantly increased and had been very offensive for about two years. The uterus had been curetted by one of my colleagues in February, 1896, but a microscopic examination of the scrapings had not indicated that the disease was malignant. After a time, however, a clinical diagnosis of malignancy was made, and I was asked to remove the uterus. When I saw the patient her womb was slightly enlarged, and was discharging great quantities of extremely offensive matter, and as a consequence the patient was extremely anæmic. Removal of the uterus seemed possible, and the patient, although made fully aware of the serious nature of operative treatment, was most anxious to take the risk. My colleagues, with whom I consulted, thought an operation was justified as affording the only chance of relief. I therefore agreed to open the abdomen and to perform hysterectomy if the disease seemed confined to the womb. I found an enlarged uterus, retroflected, but quite free from adhesions, and apparently limiting the disease within its walls. I removed the uterus, but in separating it from the bladder my finger slipped through the tissues of the cervix into the cervical canal, and when I divided the peritoneum behind the cervix, the body of the uterus came away in my hand. Cancer had almost destroyed the whole circumference of the uterine wall at the level of the inner os. I removed the remains of the cervix piecemeal, but, I thought, completely, securing all bleeding points, and cleaning the parts carefully. The patient, at the end of a long operation, was in a very weak state, the temperature being 97·6° and the pulse 136. The pulse soon came down to 96, the temperature gradually rose, and in the evening, although she was very feeble, the patient's condition, both physically and mentally, was satisfactory. Next day she appeared to be doing well in many ways. She had passed 10 ounces of urine in the night without the aid

of a catheter, and had had some quiet sleep. Flatus had escaped when a rectal tube was passed, and there had been no vomiting. The temperature had risen to 102·2° F. in the axilla, but had come down to 99·6° by 10 a.m. The pulse, however, was extremely feeble, had risen to 140, and during the forenoon the heart failed still more. Early in the afternoon the patient suddenly collapsed, the temperature falling to 97°, and the pulse becoming uncountable. When I saw her a little later she was evidently moribund, but still sensible, and the condition seemed to me to simulate the effects of hæmorrhage so closely that after I had ascertained that there was no escape of blood from the vagina, I determined to re-open the abdomen. The patient was so ill that no harm could result if there were no hæmorrhage, and it did not seem right that I should leave the question of the possibility of the existence of hæmorrhage undecided. The second operation was a very trivial one—merely the removal of a few sutures and the insertion of the finger—but it might have been a very important procedure, as in Case No. 24, and it brings the case within the limits of this paper. The patient died an hour later.

At the autopsy some coils of intestine were found adherent in the pelvis, and there was some turbid serum there also, but no blood. A part of the cervix uteri had not been removed. The report says that no definite cause of death was discovered.

I believe that this was one of those cases in which the patient dies of the reaction from the operation—from sheer inability to withstand the effects of the advancing inflammation. Such cases are often ascribed to the effects of shock; but the conditions are as different as possible from those seen when the patient dies from the immediate effects of an injury.

Of course, the question arises whether death was due to a rapid septicæmia, for the patient was certainly septic; but the death was, I consider, primarily from heart failure, and the clear brain, the moderate temperature, and the whole aspect of the patient were altogether unlike what is found in a typical case of rapid septic infection.

It was, perhaps, an error of judgment to yield to this patient's desire to be operated on; but I have always been guided in this question by the view that if there be any doubt as to the course to be adopted, that is, if I think there is any chance at all of benefit being derived from an operation, the patient should be

allowed to decide for or against this course, if he or she has been made clearly to understand the risks involved—always provided, of course, that the patient appears to be capable of making a well-weighed decision. Although I consider that in this case it was a mistake to operate, there are other cases (No. 13 in this list, for instance) in which I dreaded the result of surgical treatment quite as much, and yet the issue has been in every way satisfactory.

In the last four cases in my list I was fortunate in being able to perform successful operations in emergencies occurring in the practices of others.

In Case No. 23, the operations were the same as in Case No. 21, namely, a hysterectomy and a re-sewing of a ruptured incision on the eleventh day. But in this case the patient was a strong woman, her wound gave way suddenly during the night, and when I examined it some hours later, I found the protruding bowel firmly adherent to the divided edges of the incision. I cleaned the parts, returned the viscera, and sewed up the wound, which did not give any further trouble.

In Case No. 24 I was asked to see a patient about two hours after a hysterectomy had been performed. She had suddenly become very pale and faint whilst in the act of retching. When I saw her, she had every appearance of severe hæmorrhage. As the gentleman who had operated was not at hand, I opened the abdomen, found that its cavity was full of blood, and that the right broad ligament had slipped completely from its ligatures. I re-secured the divided broad ligament, and removed large quantities of blood; but I did not wash out the abdominal cavity, because healthy blood clot is not likely to do harm. A glass drainage tube was placed in the pouch of Douglas. It was doubtful for many hours, indeed for days, whether the patient would survive, but she gradually rallied, and made a perfect, though slow, recovery. She was alive and well five years after the operation.

In the second last case the inverted fundus of the uterus simulated a polypus, and had been removed by means of scissors, the nature of the operation being discovered by examination of the specimen. I saw the patient within an hour, and, although her condition did not appear serious, I thought it best to insure against hæmorrhage by opening the abdomen and securing all

bleeding points. The second operation was begun within two hours of the first. Very little bleeding had taken place, but the disturbance of the parts set up free hæmorrhage, and there can be little doubt that the patient would have run a very serious risk when reaction set in if the hæmostatic power of nature had been trusted to. I tied the uterine arteries and broad ligaments, and sewed together the divided uterine surfaces, so as completely to close the opening from the vagina to the peritoneum. The patient made a perfect recovery.

The accident that occurred in Case No. 26, is, I believe, very rare. I have heard of only one other case. In dressing a patient whose pelvis was being drained, I discovered, on the fourth day after operation, that the glass drainage tube was fractured. It had been noted that the discharge from the tube had continued of a bright red colour longer than usual, but there was nothing to indicate when the fracture had occurred. I removed some sutures and fished up the lower half of the tube with a pair of forceps, the blades of which were guarded by rubber tubing. The two pieces of glass accurately completed the tube. Another tube was inserted for 24 hours, but beyond a sharp rise of temperature and pulse, which was recovered from next day, the accident caused no trouble, and it did not delay convalescence.

In shortly reviewing these cases I propose to direct attention only to one or two points which seem to me very important in connection with the fatal cases, and with those in which serious accidents occurred.

The two great dangers which the surgeon must guard against in all cases of abdominal surgery are the introduction of septic mischief during the operation, and the occurrence of obstruction of the bowels or pseudo ileus after the operation.

In the foregoing cases I have succeeded in avoiding a fatal issue from these conditions, although, in all the fatal cases, septic mischief was primarily or secondarily an important cause of death.

By careful treatment the surgeon can prevent the introduction of septic mischief during an operation ; but when a case has to be operated on in which the patient's blood is already saturated with the products of some local septic mischief, and especially if, during the necessary operation, the source of septic infection must be interfered with, it may be a very difficult matter to avoid a fatal issue from septicæmia.

For instance, in Case No. 16, when I operated the bowel was gangrenous, and the patient was already thoroughly poisoned. Surgery should not be credited with the fatal issue under such conditions.

Again, in Case No. 22,* the patient was so enfeebled by discharges from the cancerous uterus and by septic absorption that she was unable to withstand a severe operation. In this case also surgery was not at fault, although, as I have indicated, the surgeon would have been wiser if he had not interfered.

In Case No. 11 the patient was so enfeebled by pain and the absorption of septic products that she had little chance of recovery after an operation which was necessarily a very severe one. I was, however, forced to operate, or deliberately to refuse the woman the only chance of a cure, for it was obvious, and the operation proved, that without surgical treatment the patient could only have lived in great pain, and that the condition would sooner or later have exhausted her strength.

The same remarks apply to the case of the child with the large suppurating right kidney and obstruction of the left ureter. Her blood was saturated with septic products, and she had no strength left to withstand the natural effects of the second operation.

I have indicated that, in my opinion, if a patient be very feeble an operation may possibly induce death from inflammatory reaction without the existence of any septic complication, but none of the cases related above illustrate this view well, and in Case No. 15, also, there had been a long-continued absorption of waste products caused by the chronic obstruction of the bowels.

The cases in which it seems to me that death is directly caused by the reactionary fever necessarily following an operation are typically illustrated by such cases as those of railway accidents in which a severe operation, say a double amputation, is performed, and the patient does not die of shock, but recovers consciousness, and dies from 24 to 60 hours after the operation. It is practically impossible to separate the causes of the fatal issue in such cases from those in some of the cases I have related. The feebleness and the septic condition act together to prevent the patient's recovery.

No.	First Operation.	Date of First Operation.	Interval.	Second Operation.
1	Ovariotomy *	28 July, 1890...	3¾ years ...	Ovariotomy ... ...
2	Ovariotomy...	Oct., 1886 ...	4 years ...	Ovariotomy ... ...
3	Ovariotomy...	May, 1885 ...	6 years ...	Ovariotomy ... ...
4	Ovariotomy...	Jan., 1888 ...	3½ years ...	Ovariotomy ... ...
5	Double ovariotomy † ...	1877	6 years ..	Ovariotomy ... ...
6	Double ovariotomy † ...	Nov., 1889 ...	5 years ...	Ovariotomy ... ...
7	Ovariotomy *	6 Jan., 1893 ...	3 years ..	Fistula formation for obstruction of bowels, due to diffuse cancer of peritoneum.
8	Incomplete ovariotomy †...	1885	9 years ...	Complete double ovariotomy...
9	Left oöphorectomy ...	May, 1890 ...	10 months..	Rt. oöphorectomy ... ...
10	Partial removal of uterine appendages.	Jan., 1893 ...	14 months...	Removal of remains of the appendages.
11	Partial removal of uterine appendages.	April, 1895 ...	13 months...	Removal of remains of the appendages.
12	Two exploratory operations.	1891 and 1893	1 and 3 years	Hysterectomy ... ...
13	Oöphorectomy for tumour of uterus.	May, 1893 ...	3 years ...	Hysterectomy for malignant tumour.
14	Hysterectomy *	16 Dec., 1893..	22 months...	For relief of intestinal adhesions
15	Ovariotomy...	1882	11 years ...	For chronic obstruction of bowels.
16	Hysterectomy	Feb , 1893 ...	3 years ...	For acute obstruction of bowels
17	Removal of pedunculate cystic fibroid tumour of uterus.*	17 June, 1893	9 months ...	For hernia in scar ... ...
18	Ovariotomy...	June, 1881 ...	14 years ...	For hernia in scar ... ...
19	Rt. nephrotomy *‡ ...	21 July, 1891...	4 weeks ..	Left nephrotomy ... ...
20	Ovariotomy *‡	11 June. 1896	26 days ...	Nephrotomy ... ...
21	Hysterectomy *	6 Jan., 1891 ...	11 days ...	For rupture of incision .. ...
22	Hysterectomy *	9 July, 1896 ...	26 hours ...	For suspected hæmorrhage ...
23	Hysterectomy	... ...	11 days ...	For rupture of incision... ...
24	Hysterectomy	... ...	2 hours ...	For slipping of ligature from broad ligament.
25	Removal of inverted fundus uteri by means of scissors.	... ...	2 hours ...	For arrest and prevention of hæmorrhage.
26	Ovariotomy...	... ...	4 days ...	For rupture of glass drainage tube in abdomen.

* In cases Nos 1, 7, 14, 17, 19, 20, 21, and 22, the writer performed both operations. In the

† In each of the three cases, Nos. 5, 6, and 8, the writer was informed as to the nature of the some small portion of ovarian or tumour tissue had inadvertently been left behind.

‡ Cases Nos. 19 and 20 are included in the list because the kidney is an abdominal organ.

Date of Second Operation.	Patient's age at Second Operation.	Result.	Remarks.
10 May, 1894...	54	Recovered ...	Very well July, 1896. The second tumour was attached to the anterior abdominal wall and free from the pelvis.
10 Nov., 1890	49	Recovered ..	Very well September, 1896. Nearly died of obstruction of bowels after operation.
20 May, 1891...	59	Recovered ...	Could walk three or four miles without inconvenience, 21 May, 1895. Died of pneumonia, February, 1896. Nearly died of obstruction of bowels after operation.
30 June, 1891	38	Recovered ...	I had some doubts as to whether the disease removed was papillomatous or tubercular. There was much ascitic fluid. Patient fairly well May, 1893.
14 Jan., 1893...	48	Recovered ...	Very well September, 1896. Has slight hernia in scar.
28 Jan., 1896...	52	Recovered ...	Very well September, 1896.
24 Jan., 1896...	38	Relieved ...	Patient much relieved. Died a month later of exhaustion from progress of malignant disease.
5 Oct., 1894 ...	43	Recovered ...	Very well October, 1896.
12 Mar., 1891	39	Recovered ...	Patient did not improve for about ten months. Fairly well in 1896.
22 Mar., 1894	50	Recovered ...	Patient was able to work 16 hours a day six months after second operation.
1 June, 1896...	36	Died	Patient was extremely exhausted at date of second operation. She had an abscess in pelvis round ligature applied at first operation.
25 July, 1894...	47	Died	An extremely difficult operation. Four tumours removed. Patient died from an injury to the bladder, which was not detected at the operation.
16 July, 1896...	48	Recovered ...	Patient very well in October, 1896.
16 Oct., 1895...	46	Recovered ...	Patient able to go to Scotland, the South Coast, and America, in 1896, but the bowel condition is not perfect.
2 June, 1893...	53	Died	Died night of operation.
25 Mar., 1896...	...	Died	Bowel gangrenous at date of operation.
31 Mar., 1894	41	Recovered ...	Very well September, 1896.
10 Oct., 1895...	55	Recovered ...	Very well September, 1896. Had no hernia for 13 years. It came suddenly from lifting a weight.
18 Aug., 1891	11	Died	Left ureter became blocked after operation on right kidney. Child extremely feeble from prolonged pyonephrosis.
7 July, 1896 ...	35	Recovered ...	Improving September, 1896.
18 Jan., 1891...	35	Died	Patient very anæmic—had little healing power.
13 July, 1896...	40	Died	Patient exhausted by cancerous discharge at date of operation. She was very anxious to be operated on at any risk.
... ...	...	Recovered ...	Patient alive and well recently.
... ...	...	Recovered ...	Patient alive and well recently.
... ...	...	Recovered ...	Patient alive and well recently.
... ...	...	Recovered ...	Patient did well, but not heard of for several years.

others he only performed the second operation.
first operation by the gentleman who had operated. In cases Nos. 5 and 6 it is probable that

But besides septicæmia and obstruction of the bowels there are many dangers and accidents which may occur to patients in the course of an abdominal section, or after such an operation.

The bowel conditions in Cases Nos. 14,* 15, and 16, illustrate remote dangers. The cancerous recurrence in Case No. 7 illustrates a condition of great importance which should be kept carefully in view in considering a case of ovarian tumour. I believe that such recurrences are much more common than is generally supposed.

The complication is to be avoided by operating as early as possible after an ovarian tumour has been diagnosed, by taking every care to remove it completely, and by not spilling any of its contents over the peritoneum—conditions which it is not always possible to fulfil.

In Cases Nos. 12 and 21,* death was due to accidental causes and other accidents and mistakes are illustrated in the paper.

An injury to the bladder, Case 12; rupture of the wound soon after the sutures have been removed, Cases Nos. 21 and 23; the slipping of the ligatures from blood vessels, Case No. 24; and the mistaking of the fundus of an inverted uterus for a polypus, Case 25, are all accidents that have occurred before, and doubtless will again. They indicate the necessity for the greatest care in every detail of the operation and of the treatment of the patient before and after it.

One of the chief aids to avoiding such complications is the knowledge that they may occur, and this is my chief reason for taking this opportunity of bringing together illustrations of a considerable number of these accidents and of fatal cases by publishing the foregoing group of cases.

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